

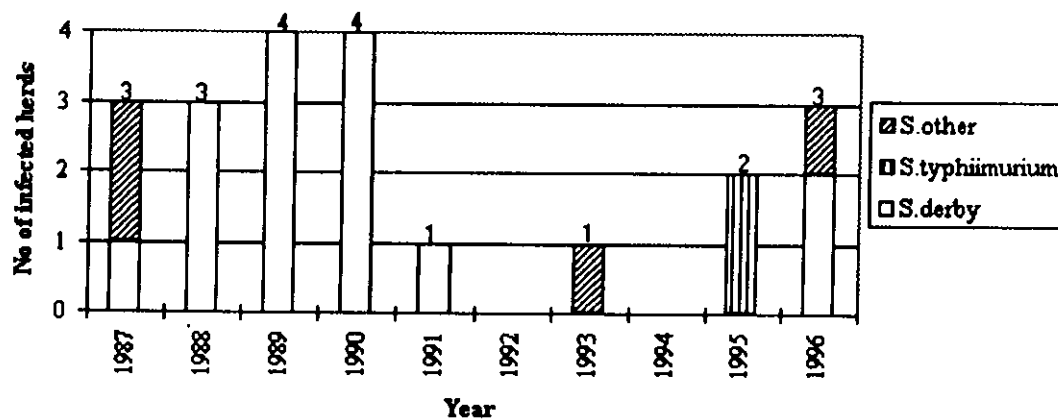
*SALMONELLA DERBY* INFECTION  
IN SWEDISH PIG HERDS

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Within the Swedish salmonella control program any findings of salmonella is compulsory notifiable. In all *Salmonella* infected herds an official veterinary officer will perform an investigation and supervise the clearance of *Salmonella* infection/contamination from the farm (Wierup, M. 1991). Infected farms are subjected to restrictions including prohibition of movement of live animals except for transport to sanitary slaughter.

During the last ten years a total of 21 isolations of *Salmonella* have been notified in Swedish pig herds (Anonymous) (Fig. 1). Twelve of these were due to repeated infections with *Salmonella Derby* in four large specialised fattening pig herds.

Fig. 1. No. of notified cases of *Salmonella* in pigs (infected herds) during 1987-1996.



The infection in the four specialised fattening herds were most often identified at bacteriological examination at slaughter or at autopsy. Occasionally the infection was identified at sanitary slaughter and in one case at bacteriological examination of meat products. In the four herds the *S. Derby* infection was subclinical.

Restrictions were laid on the herds until the infection was considered to be eliminated. Investigations performed in the four *Salmonella* infected herds revealed that indirect contact had probably occurred between three of the four herds (herds B, C and D) (Fig. 2). The investigation included control of the weaner pig producing herds delivering piglets to the infected herds. In one herd (A) this included extensive bacteriological examination of piglets

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delivered to the herd. The source of infection could not be established in any of the four herds.

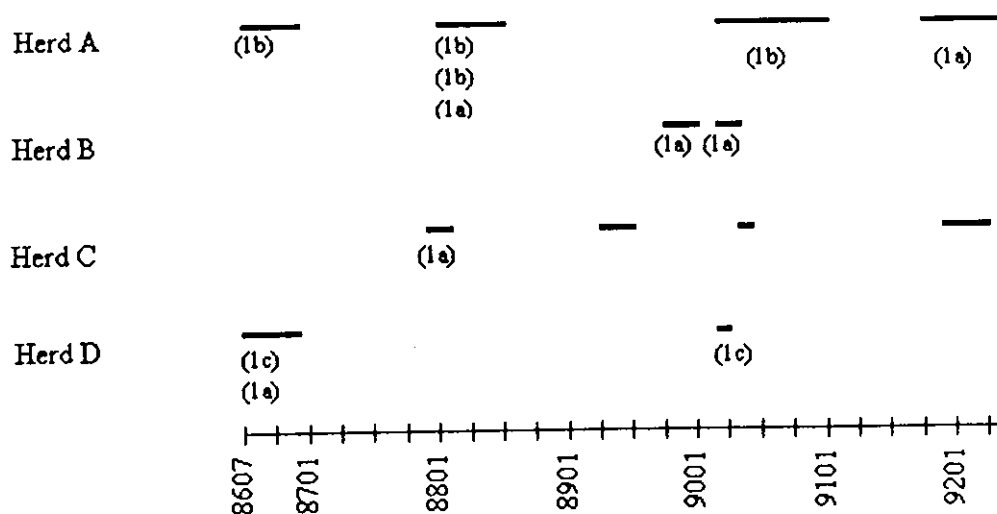
In specialised fattening herds the usual strategy for eliminating *Salmonella* infection was followed;

- \* Bacteriological examination of the whole herd (faecal samples) to establish the extent of the infection.
- \* After slaughter of all pigs in a contaminated epidemiological unit, cleaning and disinfection of the empty building and as a rule also the feeding facilities were performed
- \* Implementation of improved hygiene routines, including for example routines for visitors especially when loading and unloading live animals, elimination of rodents and exclusion of birds from stables.
- \* Bacteriological examination were performed to check the cleaning and disinfection procedures. Restocking were not allowed if positive samples were found.
- \* After restocking, an "all in all out" procedure were recommended as well as improved animal husbandry, when needed.
- \* Antibiotics were not used to control the infection.

Despite routine strategies for eliminating *Salmonella* infections in fattening pig herds, *S. Derby* was very difficult to eliminate. In one large herd (A) where the infection had persisted intermittently for more than fifteen years, it was not possible to eliminate the infection without permanently decreasing the population density on the farm by 50%.

By subtyping isolates from the four herds (Aspán et al., 1997) it was shown that the isolates of *S. Derby* occurring during these years were closely related (Fig. 2). This indicates that despite measures taken, the infection persisted for many years in the four fattening herds and that there might have been a common source of infection.

Fig. 2. Duration of restrictions due to findings of *S. Derby* in four fattening pig herds during 1986-1992. Isolates identified by puls-field gel electroforesis are marked with a number, adjacent letters indicate isolates that are closely related (but not identical).



In 1996 a different strain of *S. Derby* was found in an weaner pig/integrated pig herd (Aspán et al. 1997). By animal movement the infection was spread to a fattening herd.

Isolations of *Salmonella* in weaner pig producing herds are very rare in Sweden and the strategy for eliminating infection in these types of herds have been worked out by the Swedish Board of Agriculture for each individual herd. In brief the principles are the same as for fattening herds, but as an "all in all out" procedure can not be applied repeated testing to identify and eliminate cronicallly infected pigs are performed.

Based on previous knowledge of difficulties in eliminating *S. Derby*, from large fattening herds and as a diagnostic method with high sensitivity that identifies all infected pigs in an infected herd are lacking, the weaner pig producing/integrated herd was depopulated.

Despite difficulties in eliminating *Salmonella* infections in the above mentioned herds, experience have so far shown that the methods applied have usually lead to elimination of salmonella infection in infected herds. This is also reflected by the decreasing number of infected pig herds that are identified annually (Anonymous).

## REFERENCES

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